Transport Canada Transports Canada

TP 1624

Marine Casualty Investigations

Enquêtes sur les accidents maritimes

Investigation Report to the Minister pursuant to sections 542 or 545 of the Canada Shipping Act

Rapport d'investigation au Ministre conformément aux articles 542 ou 545 de la Loi sur la marine marchande du Canada

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INVESTIGATION REPORT INTO THE CIRCUMSTANCES ATTENDING THE GIRDING AND SINKING OF THE TUG "ROD McLEAN" IN SAULT STE. MARIE HARBOUR, ONTARIO ON OCTOBER 14, 1985.

REPORT No. 438

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INVESTIGATION REPORT INTO THE CIRCUMSTANCES ATTENDING THE GIRDING AND SINKING OF THE TUG "ROD McLEAN" IN SAULT STE. MARIE HARBOUR, ONTARIO ON OCTOBER 14, 1985.

Particulars of Vessels

Name	"ROD McLEAN"	"G.L.B. NO.2"
Official Number	171939	318425
Port of Registry	Sault Ste. Marie	Sault Ste. Marie
Type	Tug	Unmanned Barge, crane equipped for loading and discharge
Length	21.95 m	92.97 m
Breadth	5.18 m	15.25 m
Depth	3.5 m	3.65 m
Gross Tons	67.3	1700.74
Net Tons	33.87	1700.74
Year Built	1914	1953
Re-built	1975	-
Propulsion	D398 Caterpillar 634 kW Marine Diesel. Bridge controlled, fixed-pitch propeller	Caterpillar Generator, driving motor for bow thruster
Cargo	-	2000 tons Logs
Draught	F: 2.19 m A: 3.50 m	F: 1.91 m A: 2.51 m
Owner/Operator	A.B. McLean Ltd. Sault Ste. Marie	A.B. McLean Ltd. Sault Ste. Marie

Tug Navigating Equipment

Radars (2)	SI-TEX/KODEN KELVIN-HUGHES	48 miles - type 20 24 miles - type 17
Radios (2)	VHF Horizon	

Depth Sounder	Explorer II
Gyro Compass	Sperry Model SR-120
Magnetic Compass	Saura Keiki, Japan, Type T-150 II F

Following the quadrennial and annual surveys, the "ROD McLEAN" was issued with a Canadian Coast Guard Steamship Inspection Certificate SIC 19 on May 7, 1985 with an expiry date of May 6, 1989.

Note: 1. All times mentioned in this report are Eastern Daylight Saving Time (UTC minus 4 hours) unless otherwise stated.

2. A glossary of terms and abbreviations can be found following the Findings in this report.

Background

The "ROD McLEAN", an Inland Class 1 tug, was returning from Beaver Island, Michigan, on the morning of October 14, 1985 towing the barge "G.L.B. NO.2" loaded with approximately 2000 tons of logs, bound for Sault Ste. Marie, Ontario.

The master was preparing to 'spot' the barge in dense fog in a position approximately 30 m east from the south end of the government wharf in Sault Ste. Marie. When in the process of going astern, the tug fell into a position where she became girded by the port bridle. As a result, she heeled over to a very large angle from which she was unable to recover. The tug, with 5 crewmembers aboard, sank in about 6.7 m of water. The 'sink position' was registered as 46°30'11"N 84°19'36"W approximately.

All the crew were rescued by those on the barge, the whaler from the CCGS "VERENDRYE", and the "ALEX J DORY".

The cost of raising the tug and putting it back in service was estimated to be around $125,000.

This was the second time that this tug had been girded and sunk; previously, in 1959, prior to a later extensive conversion, the vessel had sunk but on that occasion the master and two crewmembers were drowned.

Narrative

The "ROD McLEAN" departed Beaver Island, Michigan at 0640 on October 13, 1985 bound for the government wharf in Sault Ste. Marie, Ontario, with barge "G.L.B. NO 2" in tow.

At 0810 the necessary length of towline was paid out and the tug's engine was set to 'full ahead'. The trip was uneventful until the docking, the water being 'choppy' at the start but gradually becoming smoother. The towline was shortened up at Detour Light for navigating the St. Mary's River up to Frechette Point in clear weather; from then on, fog started to set in and became dense.

Although the master was on the 6 to 12 watch and the mate was keeping the 12 to 6, the master stayed on with the mate until approximately 0400 to pilot the tug up the St. Mary's River. At 0400 the master left the wheel-house to have a short rest and returned to the wheel-house at 0600 to relieve the mate. The mate then retired.

At 0830 the mate, who was unaware of the foggy conditions, was awakened by a crewmember as they were approaching Sault Ste. Marie and the master requested that they shorten up at the 'Rock Pile'. After shortening up, the mate came to the wheel-house to take his orders from the master who informed him of his plan to 'spot' the barge in a position approximately 30 metres east from the wharf. It was then his intention to obtain an 'outward clearance' at the U.S. Customs across the river, return and 'clear inwards' at the Canadian Customs before docking the barge.

The mate was checking on one radar and everything appeared normal. Stemming the river flow, the speed over the ground of the tug and barge at that time was approximately 1 knot with an official current velocity in the St. Mary's River of 1.54 knots. The master had the intercom set on the 'aft position' and had one VHF on channel 78, the same frequency as the walkie-talkie being used by the craneman and his helper, who had jumped from the tug to the barge after shortening-up.

At that time, the master had given the tug a 'kick' astern, there being approximately 3 metres between the stern of the tug and the bow of the barge, to permit the two men to climb aboard the barge. The other wheel-house VHF was on channel 16.

The mate then returned to the after part of the tug and stood on the port side of the winch, close by the brake. The normal procedure for 'spotting' is for the barge to be brought into position, with all the way taken off, and for the master to order the craneman to drop the barge spuds. With the barge safely 'anchored', the tug would be backed-up so as to slacken the bridles, which are then unshackled from the tug and dropped into the water.

On this occasion, through the intercom, the master heard the words 'go back on her' and since the intercom was the only way for him to know what was happening on the stern, he interpreted the words from experience to mean that the spuds were down on the barge and the crew wanted some slack on the towline in order to unshackle the bridles. On this assumption, the master 'kicked' the tug astern and found himself towards the starboard side of the barge with the tug heading a little to starboard; the port bridle became tight giving a slight list to port. (See attached sketch). He decided to try and realign the tug with the barge and warned his crew, through the intercom, to keep clear of the towline. During that time he had called the bargeman on VHF, channel 78, to enquire as to what was happening and if the spuds were down, but he received no answer. He then put the tug's helm to port and 'kicked' the engine ahead about one third revolutions, but only managed to increase the list. He then put her helm to starboard and the engine astern. By now, the list on the tug was increasing all the time and the port quarter of the tug was caught under the barge's lip preventing the tug from turning. The port forward spud was dropped by the men on the barge on their own initiative.

The port side of the tug had been under water from the time she developed a list, and with little freeboard the brake for the winch was awash very rapidly; the brake being located about 60 cm above the deck. The mate who was on the port side moved quickly over the winch in order to get on the high side. When the helm was put to hard-a-port and the engine was going ahead 'one third', the tug listed to about 45 degrees. The port and starboard engine-room doors next to the winch were left open for the crew to go back and forth across the deck and with a 61 cm door coaming, it did not take long before water entered the engine-room compartment, thereby increasing the list.

The master realized that the list was increasing but did not appreciate the urgency of the situation and continued to request advice from aft using the intercom. Hoping that the tug would come upright, the master only understood the danger when the mate shouted to him through the wheel-house window that the tug was sinking and that he should escape. The mate then helped the master out through the same wheel-house window.

The general alarm was not sounded but fortunately everybody was up and on deck at the time. All five crewmembers on the tug fell into the water, with the cook hanging onto the starboard bridle. The mate was thrown a line by those on the barge and assisted aboard, while the cook was thrown a lifebuoy. As the cook drifted to the side of the

barge, he too was raised aboard; the cook sustained two cracked ribs in this process. The master stayed on the side of the tug until she sank, when he was sucked under by the tug but resurfaced shortly after, finding the second engineer floating not far away with a lifebuoy. The master then swam over to hang onto the same lifebuoy and they then paddled over, and clung on, to the red marker buoy 'QA2'. When they saw the chief engineer drifting next to them, they shouted to him to extend his arm so that they could get hold of him, and all three of them were able to stay with the buoy.

A 'Mayday' message was transmitted by the craneman aboard the barge on his hand-held VHF radio and was immediately acknowledged by the U.S. Coast Guard at 0910. The messages being exchanged between the barge and the USCG were also picked up on the VHF radio scanners of people ashore. The Canadian Coast Guard Radio Station also picked up the 'Mayday' but the USCG was first to answer; the Canadian radio station then monitored the situation in order to telephone the OPP and request them to go to the scene.

The wife of another tug operator, upon hearing the 'Mayday' on her VHF receiver, immediately called her husband who was in a Sault Ste. Marie restaurant with some of his crew. He then rushed to his office on the north end of the government wharf. Unaware of the location of the casualty but knowing the identity of the tug, he telephoned the owner's office, where the Manager of the company informed him of the location of the vessel. This tug operator then rushed to the south end of the wharf, where he heard the noise of the barge engine, and saw the three men in the water hanging onto the buoy. He ran to get his workboat, the "ALEX J DORY", on the other side of the dock and was joined by one of his crewmembers; at the same time the fire department arrived on the scene and one of the firemen joined the boat's crew.

The CCGS "VERENDRYE" was at her normal berth in Sault Ste. Marie and on four hour 'stand-by' notice for SAR or other emergency duty. On board the vessel the quartermaster had been carrying out his hourly round with a punch clock and was therefore away from the wheel-house at the time of the 'Mayday'. He was back in the wheel-house at around 0910 when an officer with Parks Canada rushed on board and informed him that a tug had sunk off the government wharf. The quartermaster immediately advised his duty officer and arrangements were made to telephone the first mate at his home. The quartermaster then prepared and boarded the whaler along with the duty officer and the Parks Canada officer, and proceeded to the scene at three quarter speed due to dense fog. From the time the "VERENDRYE" was advised of the casualty, it took the whaler approximately 8 minutes to reach the people in the

water.

As the other tug operator and his group rounded the corner of the dock in their boat, they met the whaler from the CCGS "VERENDRYE"; both boats then went to the buoy. The whaler was able to pick up two men from the water and the third person was taken aboard the "ALEX J DORY".

The rescued crewmembers aboard the barge were then picked up and all of them were transported to the hospital, examined and then released.

The weather throughout the period was foggy, with light north-westerly winds, a calm sea, air temperature 20°C and sea temperature 15°C. The estimated velocity of the current at that particular position was approximately 1.5 knots.

The tug "ROD McLEAN" was subsequently raised on October 18, 1985, pumped out and towed to the owner's company dock where it was intended for the vessel to be refitted.

Analysis

1. The "ROD McLEAN" is a steel tug built in 1914 in Cleveland, Ohio, U.S.A. and rebuilt in Sault Ste. Marie, Ontario, in 1975. Her stability booklet was approved by the Ministry of Transport on March 9, 1976 with a note to the master that read:

> "To maintain minimum stability criteria, this vessel shall not be operated with less than 25% oil fuel capacity i.e., there shall not be less than 825 U.S. gallons or 2' 10" sounding in each fuel tank during service conditions."

This notice was posted in the wheel-house and reportedly the tug had 2000 imperial gallons of fuel oil on board at the time of sinking.

The information taken from the stability book with a minimum consumable of 10% and 25% for fuel shows an initial GM of 0.55 m (1.80 ft). The Interim Standard of Stability for Ships Built or Converted for Towing, "STAB 3" states that the initial metacentric height (GM) should not be less than 0.55 metres (1.80 ft.). The tug then met the minimum stability requirements as established by the Ship Safety Branch of the Canadian Coast Guard.

2. It is acknowledged by crewmembers that the tug would

heel very easily and that it was considered important to keep the engine-room doors closed when the vessel was underway. This fact was emphasized by the Manager of the company on many occasions.

It was reported that the crew dutifully kept the doors closed while they were at sea but when they were 'yarding' or preparing to dock or 'spot' barges, the doors would be left open to enable the crew to go from one side of the tug to the other, and thereby avoid the danger of passing the towing gear on the stern.

The aft door from the galley leads to the cross-alleyway and the port and starboard engine-room doors lead to the main deck outside the accommodation. The port engine-room door is the one through which the downflooding occurred.

3. The wheel-house is the only location from which the vessel can be conned; however, the engine controls, mounted on pedestals can be operated from the port and starboard side of the wheel-house, respectively. Two small windows looking aft are located on the upper port and starboard sides of the wheel-house and slightly above the deckhouse top. There is no view of the after deck from the wheel-house and the master must rely entirely on information passed by crewmembers regarding the work being performed aft.

   There are then two ways in which the master can communicate with his crew:

   a) by intercom from the wheel-house to the stern of the tug, and

   b) by VHF, using channel 78, from the wheel-house to the craneman using his portable VHF unit, either on the tug or aboard the barge.

   In this instance, the VHF in the wheel-house was used once with the tug heavily listed and the intercom was used by the master about three times, but no answer was apparently received in the wheel-house from either source.

4. The towing gear on the "ROD McLEAN" consists of a 2.50 cm steel wire, which is wound on the towing winch, and the connecting end has an eye with 1.5 m length of 5.7 cm rope, to absorb shocks while towing. Shackled on to this rope are two 3 cm steel wire rope bridle legs leading to the barge. The normal procedure to let go

the bridles, is for the tug to back-up enough so the bridles become slack and lay on the deck; the tug's crew then unshackles the bridles and allows them to drop in the water as the tug leaves the barge. During this process, the winch is left unclutched (out of gear) with the brake firmly applied.

On the "ROD McLEAN" the winch brake is situated on the port side between the winch and the motor casing; the handle of the brake is about 25 cm above the top of the casing. The tow wire cannot be hove-up to take in the bridles on the winch because the shackle forming part of the eye will not go through the spooling gear.

5. Three crewmembers were on the stern of the tug for the manoeuvring but no one was specifically assigned to stand by the brake.

6. The closest that the barge "G.L.B. NO. 2" can be brought to the stern of the tug, with the towing gear tight, is 3 metres, as the shackle between the towline and the bridles cannot pass through the spooling gear.

7. Visibility at the time was between 30 m and 90 m in fog with a light north-westerly wind.

8. The tug "ROD McLEAN", previously the tug "TWINPORT", was extensively rebuilt in 1975, at which time the Board of Steamship Inspection re-classified the vessel as a 'new ship'. Consequently, the tug was required to be fitted, at the steering position, with a control by means of which the tension on the towline could be reduced immediately, in accordance with section 132 (1) of the Hull Construction Regulations, Part VIII. The "ROD McLEAN" was not fitted with such a mechanism.

   See Annex 1 for excerpts of the regulation.

9. The girding of the tug was caused by the combined effects of the port helm and the 'ahead' movement on the engine as the tug unsuccessfully attempted to return in front of the barge. At that point, the release of the tension on the towline or the stopping of the engine could have prevented the incident.

   When the tug was first approaching the wharf, the master had been gradually taking the way off the barge by disengaging and re-engaging the tug's main engine gear. This was done so that, by the time he 'kicked' the tug astern, the barge was only creeping ahead and at that speed it is very unlikely that the barge could have

overrun and capsized a tug of that size.

Being in command of the tug, the onus was on the tug master to ensure that adequate instructions were given to the crew so that the anchoring of the barge proceeded smoothly and without hinderance. However, in this instance, it would appear that the instructions either lacked clarity or were misunderstood. Consequently, the master, upon hearing on the intercom 'go back on her', without ensuring that the barge's spuds had been lowered, assumed that they were down and that a crew-member was requesting 'astern movement' in order to relieve possible excess strain on the spuds, thereby enabling the crew to unshackle the bridle from the towline.

The accepted shipboard practice for communication is to repeat and acknowledge all orders/instructions to prevent misunderstanding; however this procedure was not followed aboard the "ROD McLEAN".

10. Shortly after the sinking of the tug, the owners hired a company to send divers down in order to seal vents and other openings. The vessel was found to be lying on the bottom at an angle of about 45° on the port side, her stern still hooked to the barge by the bridles. Although not required as part of an official survey, the divers indicated that the rudder was about 15° to starboard.

11. The examination of the "ROD McLEAN" on her recovery revealed the following:

- the port side forward window was cracked and pushed inwards probably due to water pressure;

- the starboard side sliding window was open;

- the rudder angle indicator showed 30° to starboard;

- the rudder was amidships;
(the discrepancies between the rudder angle (in 10 above), the rudder angle indicator and the final rudder position are not explained.)

- the throttles on port and starboard side, working in unison, were in an 'engaged' position astern;

- the two engine-room doors were hooked open; these were hooked by the divers during salvage but it was reported by them that the doors were found opened

but not hooked prior to this operation;

- considerable quantities of mud were found in all spaces, and

- decks, mostly around the engine-room, were covered with mud and oil.

12. The approximate course steered from the 'Rock Pile' to the government wharf was 310° Gyro, there being no gyro error, and the tug was stemming a current that sets in a direction of about 120° True. The master's estimate of the strength of current agreed with the officially stated figure of about 1.5 knots; he was familiar with the river current.

13. The liferaft was found floating about 200 metres downstream from the tug and was held there by oil booms. The painter was partially pulled; there was 2 metres of painter left inside the container, with the free end of the painter made up with a bowline knot. The painter was not broken and after checking the cradle, no place could be found from where the end of the painter could have slipped if it had been properly secured. The life-raft, a Dunlop serial No. 3/28128 had been serviced according to the Lifesaving Equipment Regulations and was opened on recovery for inspection. When tested, it inflated perfectly but diesel oil had found its way inside the container.

14. The master had had a two hour rest in the fifteen hour period before the accident. He was on duty from 1800 until 2400 on October 13 but stayed in the wheel-house with the mate until 0400 on October 14. He then went to rest in his room until 0600, at which time he relieved the mate after having had his breakfast. It was claimed that tiredness was not a factor as the master had had a good rest in the afternoon of October 13, and that this was the normal way of operating when the tug was in restricted waters.

15. On June 22, 1959 the "ROD McLEAN", then known as the "BAYPORT", was girded by her tow and sank outside of Collingwood Harbour, Ont., with the loss of her master and two other crewmembers. The vessel, then a steam tug, was extensively rebuilt in 1975 and renamed the "TWINPORT".

16. The master holds a Canadian Master Home Trade (350 tons) Certificate issued in February 1974. He has been sailing for the Company since 1952 and since 1959 as

master.

The mate holds a Canadian Coastal Navigator I, Certificate issued in April 1985 and has been employed by the same company since 1977 and acts as master when required.

The crane operator holds a trade certificate for a Hoisting Engineer and has 3 years experience as a crane operator plus 7 to 8 years experience as deck-hand on board tugs.

Findings

Whilst manoeuvring to anchor the barge "G.L.B. NO.2" off Sault Ste. Marie, the tug "ROD McLEAN" sank as a result of being girded. It would appear that the following factors contributed to the girding and the subsequent sinking of the tug:

- due to an ambiguous communication, the master went astern on the tug's main engine without confirming that the barge had been anchored;

- orders/instructions for manoeuvring operations were neither repeated nor acknowledged contrary to accepted shipboard practice;

- the wheel-house does not provide a clear view of the working area at the stern;

- the barge mooring operation was being carried out in severely reduced visibility conditions and in a current of 1.5 knots;

- the engine-room access doors in the port and starboard sides of the engine-room casing were left open during the mooring operation;

- the tug was not equipped with a control at the steering position in the wheel-house by means of which tension in the towline could have been released immediately. Had she been so equipped, this incident would probably have been averted; and

- although the "ROD McLEAN" complied with the minimum regulatory requirements for intact and damaged stability, she was known to be relatively tender in normal service. Her inherently low freeboard in conjunction with the open port side engine-room door and the unrelieved heel of approximately 45° induced

by the girding situation, led to continuous downflooding and the subsequent sinking.

Other findings

The free end of the liferaft painter had not been made fast to the tug and therefore the liferaft did not automatically inflate immediately after the sinking.

Response to the 'Mayday' was quick and efficient.

OTTAWA, ONTARIO
OCTOBER 1986.

Glossary

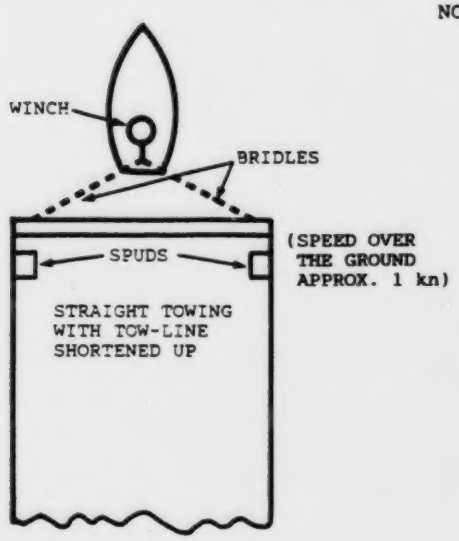
All way taken off	a vessel in a situation when she has stopped moving
Awash	covered with water
Bridle (Towing)	is the termination of a tug's towline whereby it is divided into two parts, each part being secured to either bow of the the tow
CCGS	Canadian Coast Guard Ship
Coaming	a raised frame for preventing water on deck from running below
Girding (ed)	a tug is said to be girding when she is towed sideways by an opposing force on her own towline
GM	(or Metacentric Height) is the distance between a vessel's metacentre and her vertical centre of gravity and is a measured assessment of the vessel's ability to right herself when inclined
Kick	engine movement for a brief period of time
OPP	Ontario Provincial Police
Spuds	local term denoting steel legs on a barge and used for anchoring
Spooling gear	a mechanical arrangement for placing the turns of wire evenly on a winch drum as it rotates
'Spot'	to position a barge or other towed craft
STAB 3	is one of a number of stability criteria established by the Ship Safety Branch of the Canadian Coast Guard, generally based on the International

	Maritime Organization Standards. STAB. 3 is an interim standard applicable to tugs
USCG	United States Coast Guard
VHF	Very High Frequency
VTS	Vessel Traffic Services
Whaler	a small boat, of special design
Yarding	the procedure for making up and breaking tows

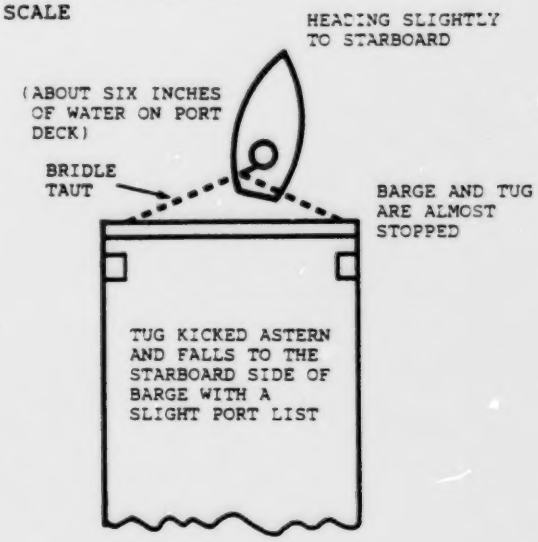
TUG "ROD McLEAN" AND BARGE "G.L.B. N0.2"

TOP VIEW

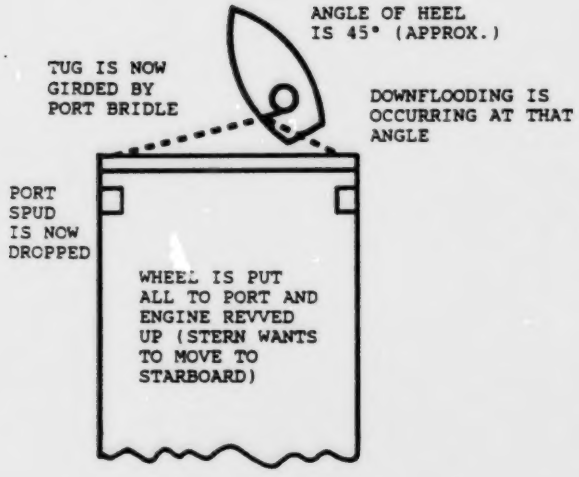
POSITIONS OF TUG AND BARGE APPROXIMATE
NOT TO SCALE



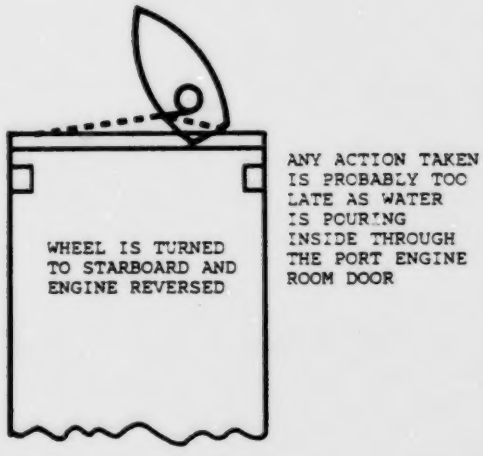
1


HEADING SLIGHTLY TO STARBOARD
(ABOUT SIX INCHES OF WATER ON PORT DECK)
BRIDLE TAUT
BARGE AND TUG ARE ALMOST STOPPED
TUG KICKED ASTERN AND FALLS TO THE STARBOARD SIDE OF BARGE WITH A SLIGHT PORT LIST

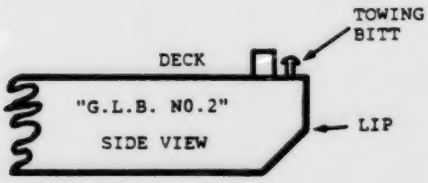
2


ANGLE OF HEEL IS 45° (APPROX.)
TUG IS NOW GIRDED BY PORT BRIDLE
DOWNFLOODING IS OCCURRING AT THAT ANGLE
PORT SPUD IS NOW DROPPED
WHEEL IS PUT ALL TO PORT AND ENGINE REVVED UP (STERN WANTS TO MOVE TO STARBOARD)

3


ANY ACTION TAKEN IS PROBABLY TOO LATE AS WATER IS POURING INSIDE THROUGH THE PORT ENGINE ROOM DOOR
WHEEL IS TURNED TO STARBOARD AND ENGINE REVERSED

4



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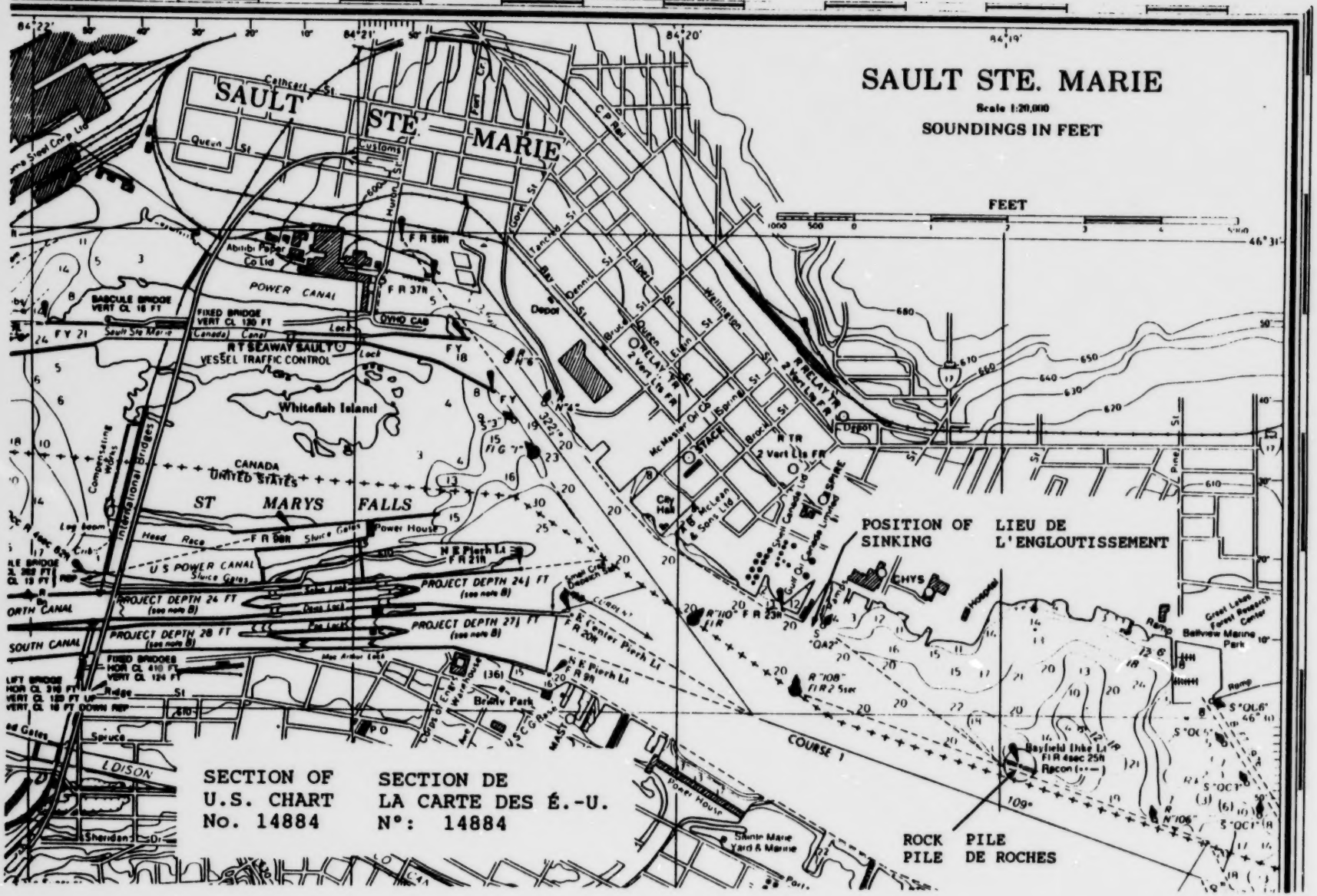
CARTE PUBLIÉE PAR LE U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



ANNEX 1

CANADA SHIPPING ACT

Hull Construction Regulations

Application of Part

101. (1) Subject to this section, this Part applies to a ship that is a steamship of more than 5 tons, gross tonnage, built or converted for the purpose of towing, but does not apply to such a ship that, when used for towing, is used only for salvaging logs.

(2) Sections 115 to 132, 138 to 141 and 143 do not apply to an existing ship until

(*a*) in the case of a ship for which on April 1, 1972 there is a certificate in force, the first day on which the certificate is due for renewal; or

(*b*) in the case of a ship for which on April 1, 1972 there is no certificate in force, April 1, 1972.

(3) Where an existing ship requires modification to comply with any of sections 115 to 132, 138 to 141 or 143, the modification work shall

(*a*) begin on or before the date on which those sections come into force with respect to the ship;

(*b*) if not completed at the time those sections come into force with respect to the ship, be resumed at intervals, not exceeding one year, that are satisfactory to a steamship inspector; and

(*c*) be completed by April 1, 1976.

(4) Where the modification work referred to in subsection (3) does not begin on or before the date required by that subsection or where at any time after that date the proportion of that work completed is less than a proportion that is satisfactory to a steamship inspector, the ship shall not be used for towing until the proportion of that work completed is a proportion that is satisfactory to a steamship inspector.

102. Where an existing ship is modified and the modification work begins on or after October 1, 1971 and if, in the opinion of the Board, it is reasonable and practicable for the ship to comply with all of this Part, the Board may declare the ship to be a new ship.

Towing Equipment

132. (1) Every ship on which a towline is attached to a winch shall have at each steering position a control by means of which any tension in the towline can be reduced immediately.

(2) Every ship on which the winch can be controlled from more than one position shall be fitted with an arrangement that prevents more than one position from exercising control at any one time.

(3) Every winch control shall be fitted with a safeguard to prevent the inadvertent operation of the control.

APPENDICE 1

LOI SUR LA MARINE MARCHANDE DU CANADA

Règlement sur la construction de coques

Application de la présente partie

101. (1) Sous réserve du présent article, la présente partie s'applique à un navire à vapeur d'une jauge brute de plus de 5 tonneaux, construit ou transformé en vue du remorquage, mais ne s'applique pas à un tel navire qui sert de remorquage exclusivement en vue de récupérer des billes.

(2) Les articles 115 à 132, 138 à 141 et 143 ne s'appliquent à un navire existant,

a) s'il s'agit d'un navire à l'égard duquel un certificat est en vigueur au 1er avril 1972, qu'à compter de la date à laquelle ce certificat doit être renouvelé; ou

b) s'il s'agit d'un navire à l'égard duquel aucun certificat n'est en vigueur au 1er avril 1972, qu'à compter du 1er avril 1972.

(3) Lorsqu'un navire existant a besoin d'être modifié pour répondre aux exigences des articles 115 à 132, 138 à 141 ou 143, les travaux de modification doivent

a) commencer au plus tard à la date d'entrée en vigueur des articles qui s'appliquent au navire;

b) reprendre à intervalles d'au plus un an, à la satisfaction d'un inspecteur de navires à vapeur, lorsqu'ils ne sont pas achevés à la date d'entrée en vigueur des articles qui s'appliquent au navire; et

c) être achevés le 1er avril 1976.

(4) Lorsque les travaux de modification dont il est fait mention au paragraphe (3) ne commencent pas à la date ou avant la date prescrite à ce paragraphe ou lorsque, après cette date, la partie exécutée des travaux est moindre qu'une partie jugée acceptable par un inspecteur de navires à vapeur, le navire ne doit pas servir au remorquage avant que ne soit exécutée une partie des travaux jugée acceptable par un inspecteur de navires à vapeur.

102. Lorsque les travaux de modification d'un navire existant commencent le 1er octobre 1971 ou après cette date et que, de l'avis du Bureau, ce navire peut raisonnablement répondre à toutes les exigences de la présente partie, le Bureau peut déclarer que ce navire est un navire neuf.

Équipement de remorquage

132. (1) Les navires équipés d'un câble de remorque attaché à un treuil doivent être munis, à chaque poste de commande du gouvernail, d'un organe de commande permettant de diminuer instantanément la tension du câble de remorque.

(2) Les navires dont le treuil peut être commandé de plusieurs postes doivent être pourvus d'un dispositif qui empêche de faire fonctionner les commandes du treuil de plus d'un poste à la fois.

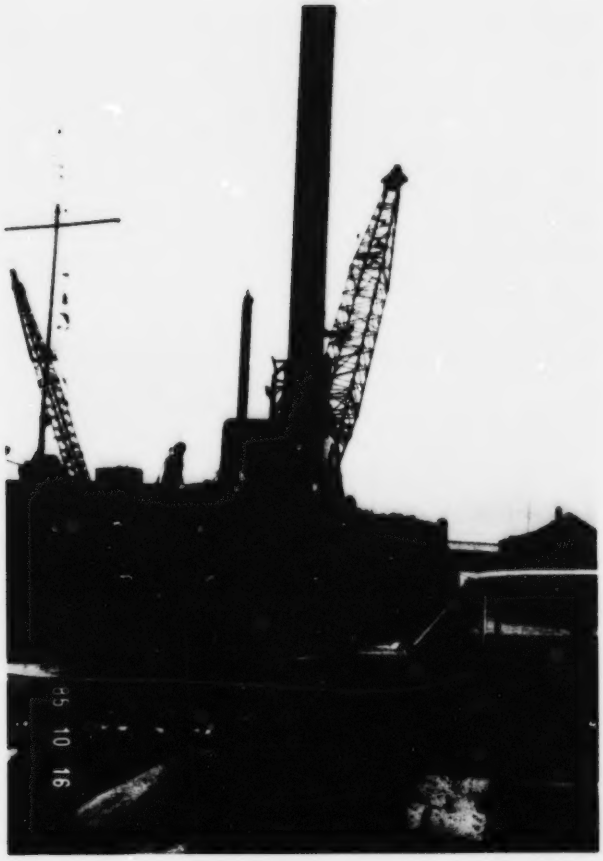
(3) Chacune des commandes de treuil doit être munie d'une garde pour éviter qu'elle ne soit actionnée par inadvertance.

Tug "ROD McLEAN" subsequent to her recovery

Remorqueur "ROD McLEAN" après son renflouement

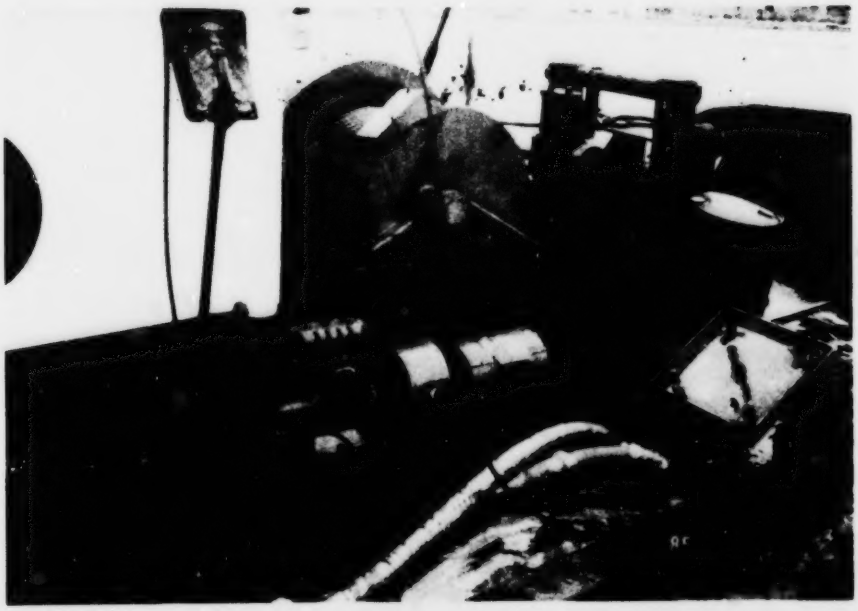
Barge "G.L.B. N0.2" with a full load of logs in August'85

Chaland "G.L.B. N0.2" avec un plein chargement de billots en Août'85



Barge "G.L.B. N0.2"
unloaded at government
wharf

Déchargement du chaland
"G.L.B. N0.2" au quai du
gouvernement



Spooling gear
Tug "ROD McLEAN"

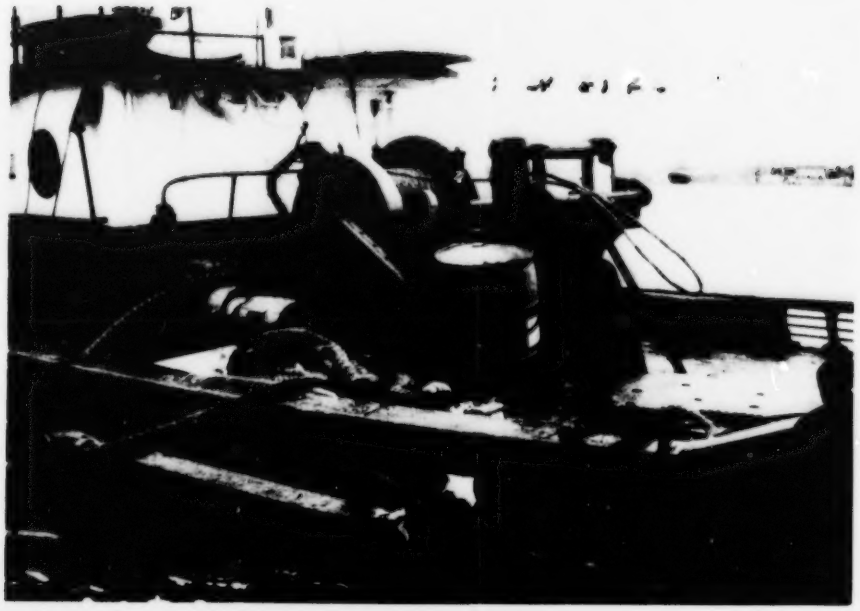
Appareil de
bobinage
du remorqueur
"ROD McLEAN"

intercom

interphone

winch brake

frein de treuil



spooling gear

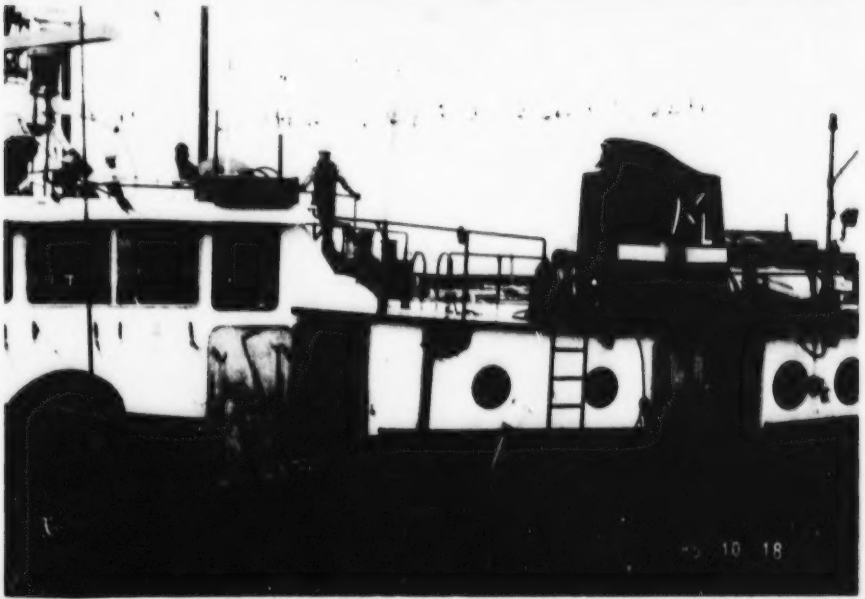
appareil de bobinage

Tug "ROD McLEAN" Remorqueur "ROD McLEAN"

engine room door

porte de la salle des machines

Tug "ROD McLEAN" Remorqueur "ROD McLEAN"



Tug "ROD McLEAN" being raised and pumped out

Remorqueur "ROD McLEAN" soulevé et épuisé